

VIRGINIA WILDLIFE

FEBRUARY, 1958

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Virginia State Chamber of Commerce Photo

*Whence those impetuous currents in the moan
Which neither oar nor sail can stem; and why
The roughening deep expects the storm, as sure
As red Orion mounts the shrouded heaven.*

—Armstrong

VIRGINIA WILDLIFE

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A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting, Fishing and Outdoor Recreation in Virginia

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Cover

The woodchuck (*Marmota m. monax*) is found in most of the counties of Virginia. His favorite habitat is open fields and the edge of woodlands.

Game Commission Photo by Kesteloo

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Nature Asks Obedience

THE rivers of the earth run to the sea in response to an ageless calling. The remains of various forms of marine life sooner or later inexorably drift to the ocean bottom where their hardened parts are preserved as fossils in layer upon layer of calcium. The creaking over-mature pine in a forest that has withstood the buffeting of 200 February winds finally cracks at the base and crashes to the wood's floor. An ice crystal, formed in a tiny rock crevice on the mountain top, suddenly splits a giant boulder one day into a thousand fragments. Down by the sea a man builds a house on sand only to soon discover he has no dwelling. The farmer inadvertently tills his fields up hill and one day finds his soil nutrients gone, the valuable top soil in the bottom of a creek—or on his neighbor's land miles away. Such is nature and such are her immutable laws that antedate time immemorial. They do not change. Although nearly everything in the universe seems subject to change, certain basic laws within our cosmos are changeless. If man is to survive in this world of split atoms and constantly disarranging molecules, he must yield place to obeying nature's laws or suffer the consequences.

If man is to live and prosper in a coming world, he must learn to give basic obedience to nature. Let his forests burn, and he will find that a new forest will not be renewed in anything like humans' terms of time. Let his pastures or browse lands get overeaten by cattle, or deer, and it is years before the damage can be repaired. To be sure, man can speed the repair job but Nature must still do the basic work.

Today much of the world is hungry, unclothed, diseased, largely and simply because man has failed to cooperate with nature. Anyone who doubts for one instant the existence of the basic truths of natural laws need only take a modern show-me-trip through the graveyards of passing people—Babylon, Syria, North Africa.

Mankind today is plagued by false promises of complete dominion over the forces of nature. Let him not be fooled. Man's boasted "conquest of nature" can be his Armageddon. Unless he recognizes once and for all that man can only "discover" and not "create," that he must

obey and not usurp higher law, he may be courting a destiny from which he may never be able to recover. The sciences and humanities teach us that all things which grow tend by nature to the perfection of their being. And, since man is a living organism, he should and must be numbered among the things that grow.

Man has a twofold type of growth. He grows physically and he grows mentally. Physical growth is something controlled by the genes and this man can do little about. Mental growth, however, is largely a matter of each person's own labor and initiative. It is subject to his will.

Today we see man living in a paradox of fear and greatness. Uprooted as never before, frustrated by the power of technological events suddenly thrust before him, he gropes to shape his future. Suddenly, in the lightning flash of the dark night, he sees himself in brilliant glory, but the light is momentary and darkness descends again; a hollow sense of impotence returns. The day is approaching, he finds, when his environment will be limited. Man, living man, he sees, must now make a choice between planned growth and lawless chance, between honest conviction and vacillation. He must shape his future by safeguarding a healthy natural environment or pass into the dust of oblivion from which he arose.

The dreadful cold war between two half worlds involves more than fierce polemics between ideologies. It is more than a struggle for the minds of men. It is a battle for space and time and the natural resources of the globe—limited natural life-sustaining resources, nature's assets that are getting fewer each year, each month, each day, each minute. Resolution of the conflict cannot be found in war for the issue still remains. It can only be resolved through understanding of the basic problems involved—a resolution of the social, moral and spiritual point of view, and a deep sense of responsibility for man's place in his expanding universe and ever shrinking planet, Earth.

Time marches on. The sun is set, the moon no longer shines, no stars twinkle in the sky.

We must light our candles, or we shall be in utter darkness. —J. J. S.

Kellner Leaves Commission; Cantner Takes Over Post

W. C. "Bill" Kellner, associate editor of VIRGINIA WILDLIFE and assistant chief of the education division for the past three years, resigned from his position in December to accept more lucrative outside employment. His new connection has not been disclosed at the time of this publication.

Bill is a graduate of V. P. I., holding a master's degree in wildlife conservation, and joined the Commission in 1952. He served as a special services officer in the field for three years before taking up editorial and adminis-

trative duties in the Richmond office.

Bill was a quiet, hard working, loyal assistant, won many friends for the Commission and contributed substantially to the wildlife conservation education effort in the Commonwealth. He will be missed.

D. E. Cantner, another V. P. I. graduate and special services officer for 2½ years and assistant to Kellner during editor Shomon's 10½ months' leave of absence last year, was named to fill the vacated post of associate editor and assistant chief of the education division. — J. J. S.



U.S.F.W.S. Photo by Daniel H. Chapman

If the people of America are to enjoy free hunting in future years, the time is now when new programs and policies must be formulated.

The Future of Hunting

By I. T. QUINN
Executive Director

THERE is a wide difference between the systems used in hunting wild birds and animals in this country and European countries. For example, in England the game belongs to the individual. As a consequence, none but the landed gentry and the nobility, who own all the land, has the right to hunt. A non-landowner gets to hunt only upon invitation.

Here in this country, the wildlife is the property of the state and, therefore, owned by all the people of the state. The title to all resident game birds and animals is in the state for the purpose of regulating the time, manner, etc., for taking it. Migrant game, for example, ducks and geese, are regulated by the federal government, but are the custodians of the state so long as they remain within

the state. While the landowner has the right to say who shall come upon his premises to hunt, he has no authority whatever to say when and to what extent game may be taken. In fact, if the state reaches the conclusion that it is necessary to close the season entirely on a given species of game, the landowner has no say whether the season will be closed or remain open. There the state manages the game for all the people — landowners and non-landowners.

Prior to World War I, hunting was a problem of little consequence in this country. A very small percentage of the population enjoyed this fine field of sport. During World War I, however, hundreds of thousands of young men learned for the first time how to handle a gun and



Game Commission Photo by Kesteloo

The landowners of our country will continue to have good shooting for themselves and their friends. In some areas the sportsmen cooperate with farmers in managing wildlife.

when they came home from the battle front or from camp and ship, they wanted to try their marksmanship. World War II intensified this feeling; they not only wanted to test their prowess with firearms, but they wanted for the first time to shoot at something that wouldn't shoot back.

The federal and state governments have done and are doing about all they can with the money and facilities at their command to make hunting as pleasurable and profitable as it can be made.

There are some factors that must be considered for the future and some insurmountable difficulties with which we are faced.

We have for a long time boasted of free hunting in America—and free hunting in Virginia has been our song for a great many years.

Do we actually have free hunting in Virginia? Yes, in a limited way. But we are now facing the fact that with a hundred thousand deer herd east of the Blue Ridge Mountains, there is scarcely an acre where deer appear in quantity that has not either been bought outright or leased for a stipulated amount for the exclusive use of hunting deer, and, in many instances, all classes of game.

We certainly cannot blame the landowner for selling certain hunting privileges on his land. Some of the choicest hunting left in Virginia, however, is still in the hands of the owner (proprietor) and is held specifically for his friends.

Practically every acre of waterfowl marshland in the Commonwealth has been acquired by purchase or leased by individuals and clubs so that waterfowl shooting is becoming more and more restricted each year.

Criticism of the landowner for selling the hunting privileges on his holdings—upland or marshland—cannot be justified. The General Assembly of Virginia and

the Commission of Game and Inland Fisheries have "postponed the evil day" and will continue to as long as possible by requiring the hunter to obtain permission, oral on unposted lands and written permission on posted lands. This, it is believed, will provide reasonable hunting to more hunters than any other method yet devised.

Recently after attending the annual meeting of the Southeastern Association of Game and Fish Commissioners at Mobile, I was privileged to shoot doves over a forty-acre cornfield that had been "hogged off" by the landowner. It is my information that he sold about \$2,000 worth of corn through hogging off this field and expected to sell approximately 1,200 hunters shooting privileges during the season, charging each hunter one dollar a shoot. Instead of making fifty (\$50.00) dollars an acre off the field, he will make eighty (\$80.00) dollars. So, the farmer is happy and every hunter who puts up his dollar is happy because he gets satisfactory shooting.

If farmers will specialize in preparing their fields for rabbits and bobwhite quail, and their woodlands for squirrels (leaving den trees and building squirrel nesting boxes) and seeing that the bushytails have plenty to eat, they will find hunters aplenty at their door ready to pay a reasonable amount to hunt.

The progressive farmers are beginning to take advantage of this new farmer-hunter relationship.

It has long been my belief, and I have talked with many hunters over the past few years who have confirmed that belief, that the average hunter would be glad to pay the landowner a reasonable fee for the privilege of hunting, provided he was assured of shooting—whether it be deer, turkey, quail, rabbit, squirrel or any other game.

Hunting pressure not only is increasing with population increase, but shorter hours are giving more leisure time and the demand for outdoor recreation intensifies the desire for hunting.

Most hunters would be willing to pay for hunting privileges provided they were assured of some shooting.



Game Commission Photo by Kesteloo

Under ever-increasing modern agricultural practices, which include clean farming and livestock, the habitat for small game—farm game—is progressively on the decrease.

The annual increase in hunter population, coupled with an ever-decreasing game habitat for most species, constitutes an almost insurmountable problem. The Commission does not want the democracy of hunting to suffer any more than is absolutely necessary. But we must face the facts.

In summation, the facts are these: (a) hunting pressure is increasing; (b) hunting areas per hunter are on the decrease both because of the increase in the number of hunters and because clean farming practices and an ever

growing livestock and dairying industry are reducing the number of acres to be hunted.

If we have enough farm landowners who are interested in making it pay to have game on their farms to hunt, there will be always enough hunters to utilize every acre that is worth hunting.

There will always be a large number of farm-landowners in the Old Dominion who will have good hunting on their uplands and marshes to take care of their friends who would never think of charging a fee for hunting. But for the average hunter and the average farmer, the time is near at hand when a mutually beneficial program must be established if the fine sport of hunting is to be continued by a large number of hunters.

Things You May Not Know

Although turtles have no teeth, their jawbones are often extremely sharp. With their powerful jaw muscles, they can bite rather hard if necessary.

The teeth of rodents grow throughout their life. The action of chewing keeps these teeth worn down to the proper size.

One of our largest American birds is the white pelican. These avian individuals often develop a wing-spread of nine feet.

Small creatures often referred to as white ants are not ants at all. These little crawling specimens are our wood-eating termites.

A small shrew, commonly called the water shrew, can actually run on the surface of a placid pool of water. This is accomplished by tiny air bubbles on the bottom of his feet.

Wildlife in American Culture

THE CULTURE of primitive peoples is often based on wildlife. Thus the plains Indian not only ate buffalo, but buffalo largely determined his architecture, dress, language, arts, and religion.

In civilized peoples the cultural base shifts elsewhere, but the culture nevertheless retains part of its wild roots. I here discuss the value of this wild rootage.

No one can weigh or measure culture, hence I shall waste no time trying to do so. Suffice it to say that by common consent of thinking people, there are cultural values in the sports, customs, and experiences that renew contacts with wild things. I venture the opinion that these values are of three kinds.

First there is value in any experience that reminds us of our distinctive national origins and evolution, i.e., that stimulates awareness of history. Such awareness is "nationalism" in its best sense. For lack of any other short name, I shall call this, in our case, the "split-rail value." For example: a boy scout has tanned a coonskin cap, and goes Daniel Booneing in the willow thicket below the tracks. He is re-enacting American history. He is, to that extent, culturally prepared to face the dark and bloody realities of the present. Again: a farmer boy arrives in the schoolroom reeking of muskrat; he has tended his traps before breakfast. He is re-enacting the romance of the fur trade. Ontogeny repeats phylogeny in society as well as in the individual.

Second, there is value in any experience that reminds us of our dependency on the soil-plant-animal-man food chain, and of the fundamental organization of the biota. Civilization has so cluttered this elemental man-earth relation with gadgets and middlemen that awareness of it is growing dim.

Third, there is value in any experience that exercises those ethical restraints collectively called "sportsmanship." Our tools for the pursuit of wildlife improve faster than we do, and sportsmanship is a voluntary limitation in the use of these armaments. It is aimed to augment the role of skill and shrink the role of gadgets in the pursuit of wild things.

A peculiar virtue in wildlife ethics is that the hunter ordinarily has no gallery to applaud or disapprove of his conduct. Whatever his acts, they are dictated by his own conscience, rather than by a mob of onlookers. It is difficult to exaggerate the importance of this fact.

Voluntary adherence to an ethical code elevates the self-respect of the sportsman, but it should not be forgotten that voluntary disregard of the code degenerates and depraves him. For example, a common denominator of all sporting codes is not to waste good meat. Yet it is now a demonstrable fact that Wisconsin deer-hunters, in their pursuit of a legal buck, kill and abandon in the woods at least one doe, fawn, or spike buck for every two legal bucks taken out. In other words, approximately half the hunters shoot any deer until a legal deer is killed. The illegal carcasses are left where they fall. Such deer-hunting is not only without social value, but constitutes training for ethical depravity elsewhere.

It seems, then, that split-rail and man-earth experiences have zero or plus values, but that ethical experiences may have minus values as well.

This, then, defines roughly three kinds of cultural nutriment available to our outdoor roots. It does not follow that culture is fed. The extraction of value is never automatic; only a healthy culture can feed and grow. Is culture fed by our outdoor recreation?

The pioneer period gave birth to two ideas that are the essence of split-rail value in outdoor sports. One is the "go-light" idea, the other the "one-bullet-one-buck" idea. The pioneer went light of necessity. He shot with economy and precision because he lacked the transport, the cash, and the weapons requisite for machine-gun tactics. Let it be clear, then, that in their inception, both ideas were forced on us; we made a virtue of necessity.

In their later evolution, however, they became a code of sportsmanship, a self-imposed limitation on sport. On them is based a distinctively American tradition of self-reliance, hardihood, woodcraft, and marksmanship. These are intangibles, but they are not abstractions. Theodore Roosevelt was a great sportsman, not because he hung up many trophies, but because he expressed this intangible American tradition in words any school-boy could understand. A more subtle and accurate expression is found in the early writings of Stewart Edward

By special permission of publisher, from *A Sand County Almanac*, by Aldo Leopold, published and copyrighted by Oxford University Press, New York, N. Y., 1949.

*Wildlife has shaped our culture --- it still yields
us pleasure for leisure hours, but machinery
has destroyed part of its value --- Reaping
it by mentality would be more prudent*

White. It is not far amiss to say that such men created cultural value by being aware of it, and by creating a pattern for its growth.

Then came the gadgeteer, otherwise known as the sporting-goods dealer. He has draped the American outdoorsman with an infinity of contraptions, all offered as aids to self-reliance, hardihood, woodcraft, or marksmanship, but too often functioning as substitutes for them. Gadgets fill the pockets, they dangle from neck and belt. The overflow fills the auto-trunk, and also the trailer. Each item of outdoor equipment grows lighter and often better, but the aggregate poundage becomes tonnage. The traffic in gadgets adds up to astronomical sums, which are soberly published as representing "the economic value of wildlife." But what of cultural values?

As an end-case consider the duck-hunter, sitting in a steel boat behind composition decoys. A put-put motor has brought him to the blind without exercise. Canned heat stands by to warm him in case of a chilling wind. He talks to the passing flocks on a factory caller, in what he hopes are seductive tones; home lessons from a phonograph record have taught him how. The decoys work, despite the caller; a flock circles in. It must be shot at before it circles twice, for the marsh bristles with other sportsmen, similarly accoutred, who might shoot first. He opens up at 70 yards, for his polychoke is set for infinity, and the advertisements have told him that Super-Z shells, and plenty of them, have a long reach. The flock flares. A couple of cripples scale off to die elsewhere. Is this sportsman absorbing cultural value? Or is he just feeding minks? The next blind opens at 75 yards; how else is a fellow to get some shooting? This is duck shooting, current model. It is typical of all public grounds, and of many clubs. Where is the go-light idea, the one-bullet tradition?

The answer is not a simple one. Roosevelt did not disdain the modern rifle; White used freely the aluminum pot, the silk tent, dehydrated foods. Somehow they used mechanical aids, in moderation, without being used by them.

I do not pretend to know what is moderation, or where the line is between legitimate and illegitimate gadgets. It seems clear, though, that the origin of gadgets has much to do with their cultural effects. Homemade

aids to sport or outdoor life often enhance, rather than destroy, the man-earth drama; he who kills a trout with his own fly has scored two coups, not one. I use many factory-made gadgets myself. Yet there must be some limit beyond which money-bought aids to sport destroy the cultural value of sport.

Not all sports have degenerated to the same extent as duck-hunting. Defenders of the American tradition still exist. Perhaps the bow-and-arrow movement and the revival of falconry mark the beginnings of a reaction. The net trend, however, is clearly toward more and more mechanization, with a corresponding shrinkage in cultural values, especially split-rail values and ethical restraints.

I have the impression that the American sportsman is puzzled; he doesn't understand what is happening to him. Bigger and better gadgets are good for industry, so why not for outdoor recreation? It has not dawned on him that outdoor recreations are essentially primitive, atavistic; that their value is a contrast-value; that excessive mechanization destroys contrast by moving the factory to the woods or to the marsh.

The sportsman has no leaders to tell him what is wrong. The sporting press no longer represents sport; it has turned billboard for the gadgeteer. Wildlife administrators are too busy producing something to shoot at to worry much about the cultural value of the shooting. Because everybody from Xenophon to Teddy Roosevelt said sport has value, it is assumed that this value must be indestructible.

Among non-gunpowder sports, the impact of mechanization has had diverse effects. The modern field glass, camera, and the aluminum bird-band have certainly *not* deteriorated the cultural value of ornithology. Fishing, but for outboard motors and aluminum canoes, seems less severely mechanized than hunting. On the other hand, motorized transport has nearly destroyed the sport of wilderness travel by leaving only fly-specks of wilderness to travel in.

Fox-hunting with hounds, backwoods style, presents a dramatic instance of partial and perhaps harmless mechanized invasion. This is one of the purest of sports; it has real split-rail flavor; it has man-earth drama of the first water. The fox is deliberately left unshot, hence

ethical restraint is also present. But we now follow the chase in Fords! The voice of Bugle Ann mingles with the honk of the flivver! However, no one is likely to invent a mechanical foxhound, or to screw a polychoke on the hound's nose. No one is likely to teach dog-training by phonograph, or by other painless shortcuts. The gadgeteer has reached the end of his tether in dogdom.

It is not quite accurate to ascribe all the ills of sport to the inventor of physical aids-to-sport. The advertiser invents ideas, and ideas are seldom as honest as physical objects, even though they may be equally useless. One such deserves special mention: the "where-to-go" department. Knowledge of the whereabouts of good hunting or fishing is a very personal form of property. It is like rod, dog, or gun: a thing to be loaned or given as a personal courtesy. But to hawk it in the marketplace of the sports column as an aid to circulation seems to me another matter. To hand it to all and sundry as free public "service" seems to me distinctly another matter. Even "conservation" departments now tell Tom, Dick, and Harry where the fish are biting, and where a flock of ducks has ventured to alight for a meal.

All of these organized promiscuities tend to depersonalize one of the essentially personal elements in outdoor sports. I do not know where the line lies between legitimate and illegitimate practice; I am convinced, though, that "where-to-go" service has broken all bounds of reason.

If the hunting or fishing is good, the "where-to-go" service suffices to attract the desired excess of sportsmen. But if it is no good, the advertiser must resort to more forcible means. One such is the fishing lottery, in which a few hatchery fish are tagged, and a prize is offered for the fisherman catching the winning number. This curious hybrid between the techniques of science and of the pool hall insures the over-fishing of many an already exhausted lake, and brings a glow of civic pride to many a village Chamber of Commerce.

It is idle for the professional wildlife managers to consider themselves aloof from these affairs. The production engineer and the salesman belong to the same company; both are tarred with the same stick.

Wildlife managers are trying to raise game in the wild by manipulating its environment, and thus to convert hunting from exploitation to cropping. If the conversion takes place, how will it affect cultural values? It must be admitted that split-rail flavor and free-for-all exploitation are historically associated. Daniel Boone had scant patience with agricultural cropping, let alone wildlife cropping. Perhaps the stubborn reluctance of the "one-gallus" sportsman to be converted to the cropping idea is an expression of his split-rail inheritance. Probably cropping is resisted because it is incompatible with one component of the split-rail tradition: free hunting.

Mechanization offers no cultural substitute for the split-rail values it destroys; at least none visible to me. Cropping or management does offer a substitute, which to me has at least equal value: wild husbandry. The experience of managing land for wildlife crops has the

same value as any other form of farming; it is a reminder of the man-earth relation. Moreover, ethical restraints are involved; thus managing game without resorting to predator-control calls for ethical restraint of a high order. It may be concluded that game cropping shrinks one value (split-rail) but enhances both of the others.

If we regard outdoor sports as a field of conflict between an immensely vigorous process of mechanization and a wholly static tradition, then the outlook for cultural values is indeed dark. But why cannot our concept of sport grow with the same vigor as our list of gadgets? Perhaps the salvation of cultural value lies in seizing the offensive. I believe that the time is ripe. Sportsmen can determine for themselves the shape of things to come.

The last decade, for example, has disclosed a totally new form of sport, which does not destroy wildlife, which uses gadgets without being used by them, which outflanks the problem of posted land, and which greatly increases the human carrying capacity of a unit area. This sport knows no bag limit, no closed season. It needs teachers, but not wardens. It calls for a new woodcraft of the highest cultural value. The sport I refer to is wildlife research.

Wildlife research started as a professional priestcraft. The more difficult and laborious research problems must doubtless remain in professional hands, but there are plenty of problems suitable for all grades of amateurs. In the field of mechanical invention research has long since spread to amateurs. In the biological field the sport-value of amateur research is now being realized.

Thus Margaret Morse Nice, an amateur ornithologist, studied song sparrows in her back yard. She has become a world-authority on bird behavior, and has out-thought and outworked many a professional student of social organization in birds. Charles L. Broley, a banker, banded eagles for fun. He discovered a hitherto unknown fact: that some eagles nest in the South in winter, and then go vacationing to the north woods. Norman and Stuart Criddle, wheat ranchers on the Manitoba prairies, studied the fauna and flora of their farm, and became recognized authorities on everything from local botany to wildlife cycles. Elliott S. Barker, a cowman in the New Mexico mountains, has written one of the two best books on that elusive cat: the mountain lion. Do not let anyone tell you that these people made work out of play. They simply realized that the most fun lies in seeing and studying the unknown.

Ornithology, mammalogy, and botany, as now known to most amateurs, are but kindergarten games compared with what is possible for (and open to) amateurs in these fields. One reason for this is that the whole structure of biological education (including education in wildlife) is aimed to perpetuate the professional monopoly on research. To the amateur are allotted only make-believe voyages of discovery, to verify what professional authority already knows. What the youth needs to be told is that a ship is a-building in his own mental dry dock, a ship with freedom of the seas.

(Continued on page 24)

Winter Field Trips

By ROBERTS MANN and DAVID H. THOMPSON

Conservation Editor, Senior Naturalist

Forest Preserve District, Cook County, Illinois

February days can be critical for wildlife. Your trips afield can be helpful in more ways than one.

IN winter, our woodlands and prairies give an altogether different impression from other seasons. Their mood is one of quiet waiting and sleep.

Now is the time to plan a school trip into the out-of-doors to see how wild living things spend the cold months. Whether it is only a hike to some nearby park, meadow or vacant lot for an hour, or whether you take a bus and spend the day in some forest preserve, a little planning and preparation will make your trip a success regardless of the weather. Be sure to wear warm clothing and shoes or galoshes that will keep your feet dry and comfortable. Take along a few wide-mouthed jars, baskets, plastic bags and cardboard boxes in which to carry collections back to school for later study. The secret of winter comfort in the open is to keep moving.

In winter, abandoned birds' nests are easy to find in leafless trees, shrubs, vines and weed patches. They should be carefully removed, sometimes with the twig or weed supporting them, and carried back to school in a box or basket. There they can be sprayed with liquid plastic so they can be handled without shattering. The nests of each kind of bird can be recognized from the nest materials and style of building by using a mimeo-

graphed key obtainable for five cents from Morton Arboretum, Lisle, Illinois.

A few of the most commonly seen native birds are the crow, blue jay, cardinal, junco, titmouse, nuthatch, chickadee and the downy, hairy and red-bellied woodpeckers. Keep a list of the kinds and approximate numbers of these, and any others, seen on your trip. Birds can be attracted to homes or school grounds by feeding in winter. Suet, drippings, peanut butter, sunflower seed, cracked corn and nuts are best.

Bring back a collection of wild seeds, burs and berries. Try to learn which kinds are eaten by birds and which are not. Plant a few kinds in pots to see what comes up.

A rotten log offers food and shelter to an abundance of life, both plant and animal, for years and years before finally returning to the forest soil. Each year some tenants move out and others move in: beetles, ants, flies, bees, spiders, sowbugs, centipedes, millipedes, slugs, snails, earthworms, salamanders, mice, shrews, moles, mushrooms, fungi—and often several kinds of each. Find a rotten stump or log and tear it apart, piece by piece, to see how many kinds of these you can recognize. Take a chunk of this rotten wood back to school to see



A good practice for winter field trips is to take along a sack of food for wildlife. While enjoying the scenery, food can be scattered in suitable spots.



Game Commission Photos by Kesteloo
An excellent spot for distributing seed is under an old blown-down tree. In this manner, the feed is protected from future snows.

what crawls out when it warms up.

Mosses and lichens thrive during the cold months while other plants are dormant. A moss garden can be made by covering the bottom of a shallow dish or pie tin with pieces of the different sorts, then keeping it moist. A simple way to start a sealed terrarium is merely to put a quart of rich damp soil in a clean wide-mouthed gallon jar, screw the lid on tight and set it near a window. That's all. Soon, dormant seeds already in the

soil will sprout and grow into a miniature inclosed world with its own weather and cycle of life.

Half fill another such gallon jar with pond water and drop into it a handful of sunken leaves, twigs or water weeds from the pond. Let it stand uncovered. Within a few days it will teem with tiny crawling, swimming, skipping animals. Watch them with a reading glass or hand lens.

Imagine you were in there with them.

February Needs of Wildlife

FEBRUARY is usually a cold winter month in Virginia and is a most critical period for wildlife. When the temperature drops and snow or sleet covers the countryside, including many of the natural foods, wild animals and birds suffer most from hunger and exposure. Animals and birds are more adapted to winter living than we sometimes think, but no matter how well they adjust themselves to frigid living, all wild creatures are at their best under well fed conditions. If wildlife is in prime condition, it can stand prolonged periods of snow and ice without serious decimation.

Most wildlife managers agree that food is probably the most important factor in limiting the number of birds or animals on any given area. Therefore sportsmen, and all lovers of nature, should be interested in what they can do to help wildlife survive lean winter months.

Most wildlife must eat reasonably well and have cover for protection every day of the year. There are several ways to help wildlife, and here are a few suggestions. Winter or artificial feeding is one method and is a temporary way to hand-feed wildlife. When the snow piles up and the cold snap hits, this might be fine for some local conditions or for holding an animal or bird on a local area. However, a more permanent natural method, such as planting food-producing plants, shrubs, or trees, is far better. If winter feeding is done, it should be conducted on a continuous basis and not as an emergency measure. Birds are creatures of habit and will quickly learn to depend on you for their food.

Food for birds should be simple: shelled corn is good for large birds, such as jays and cardinals; sunflower seeds for those that can handle them; medium scratch feed or commercial birdseed mixture, food scraps from the table, raisins, suet and even peanut butter for birds like the chickadees.

Good places to establish feeding stations are under brushpiles, in trunk crevices of trees or under overhanging rocks.

In winter there is less cover than at any other season of the year. Plants for the most part are in a dormant stage and many of them have no foliage at all. Some wild

things must change their living area because protective cover that was plentiful in summer is at a premium. People who live on the land and cut timber can alleviate this shortage to some extent by leaving their brush piles. They make ideal cover for both birds and animals.

To make brush piles more effective, some type of perennial or annual food should be planted nearby. If this is the case, then animals will not be forced to travel long distances away from protective cover in search of food.

It is a good idea, when constructing a brush shelter, not to pile the limbs directly on the ground. If this is the case very little room is left in which an animal can move beneath the twigs and branches. For best results in constructing a shelter, the limbs should be piled on top of a stump, pile of rocks or other elevated object. In this manner, the animals can move freely beneath the protective covering. Feed scattered beneath these brush shelters will certainly be utilized and appreciated by birds and animals.

A very excellent type of cover is provided by planting evergreens. When these trees reach six to eight feet in height, their foliage becomes very dense and therefore provides a great amount of protection from cold, winter winds and snow. Even in the heaviest snows, evergreens often have bare ground beneath their limbs. It is this type of foliage that will attract birds during inclement weather. Quail, rabbits and other animals will often seek this shelter during heavy snow.

Farmers can establish excellent wildlife cover by letting waste areas grow in a wild condition. The heavy vegetation produced by berry vines, green briars, honeysuckle and tree sprouts provides a type of protective cover that is excellent. Instead of burning these sections on a farm, they should be maintained as wildlife "cover islands." This heavy vegetation also prevents damage by soil erosion.

Unknown strips of hay around field edges will provide some cover. A row of corn or a strip of soy beans will provide extra food during the critical period. It is up to you, the conservationist, to develop wildlife habitat.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

ORDER SEED EARLY. Landowners and conservation groups in Virginia who plan to establish wildlife food plots in 1958 are urged to place their orders for seed at once. This seed is distributed by the Commission free of charge. Persons planting the game food mixture are asked to protect it from fire and grazing livestock. Orders should be placed through the county game wardens, district game biologists or local soil conservationists before March 1, 1958.

CONTEST TO CLOSE. To the many schoolteachers and students of Virginia, the Commission of Game and Inland Fisheries extends a final invitation for participation in the eleventh annual wildlife essay contest. To insure judging of the essays, all entries must be mailed first class prepaid to the Commission of Game and Inland Fisheries, Box 1642, Richmond 13, Virginia, by February 28, 1958.

NORMAL DEER KILL. The latest figure on the 1957 deer kill west of the Blue Ridge Mountains is 10,853, only 599 less than the kill last year. This small decline in the total kill is nothing to become alarmed over since so many factors have a bearing on the final tally.

The past six-day season found hunters experiencing bad weather on the first two days and the last day. In many counties does became legal on the final day and a decrease in the hunting pressure resulted in a lower kill. In addition to weather, the amount of food available to the deer kept many of them in remote areas away from the hunters. Many sportsmen did not hunt this year because of Asian flu. All of these factors add up to a slight decrease in the total kill. Considering all angles, however, Virginia experienced a worthwhile deer season west of the Blue Ridge

WILDLIFE CONFERENCE NEXT MONTH. Conservationists throughout Virginia are again reminded that the 23rd North American Wildlife Conference will be held on March 3-5 at the Sheraton-Jefferson Hotel in St. Louis, Missouri.

All phases of restoration and management of natural resources are scheduled for discussion at this conference. The theme of this year's meeting will be "Conservation in an Expanding Economy."

WILDLIFE FEDERATION CONVENTION. The National Wildlife Federation has announced that its 22nd annual convention will be held at the Statler Hotel in St. Louis, Missouri, on February 28-March 2.

The Federation executive director, Ernest Swift, announced that this year's theme will be "Leadership Training in Conservation." A panel discussion of this important subject will be led by Dr. George A. Selke, commissioner of the Minnesota Department of Conservation. Dr. Selke is widely known for his work in fields of conservation and education. The convention will precede the North American Wildlife Conference so that representatives of the various state Federation chapters can attend both of the important gatherings.

FISH AND GAME APPORTIONMENTS ANNOUNCED. The Department of the Interior has announced the allocation of federal aid funds for the restoration of fish and game. This money is derived from the federal tax on sporting equipment and is used by the states for fish and wildlife research and management. Virginia is scheduled to receive \$72,392.33 for fish and \$336,762.22 for game.

The amount of money allotted to a state is arrived at by using formulas based upon license sales and land and water areas.

WILDLIFE STAMPS. The 1958 National Wildlife Conservation Stamp series has been mailed, according to the National Wildlife Federation.

Contributions received in exchange for these stamps finance the operations of the Federation, which include the publishing and distribution of conservation booklets, fellowships, conservation grants and many other worthwhile conservation projects.

This year's stamps will cover scenes from wilderness areas, a recreation area, a wildlife refuge, national park and a national forest. Other stamps include 12 birds, 5 mammals, 6 fish, 4 wildflowers, 2 insects and 1 crustacean.



Prepared suet cakes containing seeds of all varieties and bulk seed mixtures may be purchased from your local seed store.



Food-laden cones may be hung by wire or string from tree limbs but far enough off the ground to be away from interference by cats and dogs.



Simplest and easiest method to feed the birds is through the use of "scatterfood," put up by many feed stores. This can be placed in an automatic feeder or scattered in protected areas under trees and shrubs.



Grapes, raisins, berries, popcorn, fruit sections, and pieces of bread are a few products found in every kitchen that can be threaded on strings and hung on tree branches.



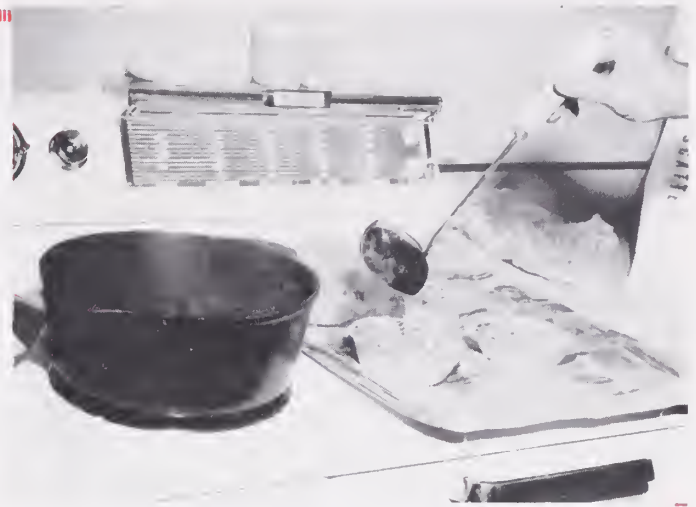
Open pine cones are natural containers for peanut butter and suet. Seeds are pressed into this mixture, which is applied to the open cones with a spoon or butter knife.



Suet may be obtained from your local butcher at small cost and in many instances at no cost at all.



Suet is melted before pouring over seed mixture. Meat scraps are added as well.



Save your empty frozen food containers. Seeds from squash, cantaloupes, and watermelons saved throughout the summer may be added to the grain mixture.

WAYS TO HELP BIRDLIFE

When OLD MAN WINTER rears his ugly head and snow, ice and sub-freezing temperatures make food problems difficult for wildlife, why not lend our friends a helping hand?

These ideas on bird feeding originated with the Richmond, Virginia, boy scouts, who turned out in great numbers one day in Maymont Park to put on "Operation Feedbag." Commission photographer Kesteloo and former associate editor Kellner re-enacted some of the practical steps in bird-feeding.



Half-inch hardware cloth tacked to a block and nailed to the trunk of a tree makes an adequate container for your homemade suet cakes. Seeds knocked to the ground are soon found by ground-feeding birds such as juncos.



Suet dispensers may be made or purchased. This one was designed for suet cake and made in a cardboard ice cream container. A nuthatch is a steady customer at this feeder.



Drawings by John W. Taylor

The duck hawk is a magnificent bird and a wonderful flier. Many of these birds have been unjustly persecuted by uninformed people who shoot them in great numbers.

FALCON in the SKY

By J. J. MURRAY*

IT is a natural thing for me, as well as appropriate to my subject, to start out with a verse from the Bible. It comes from the Book of Proverbs in the 30th chapter:

There be three things which are too wonderful for me, yea four which I know not; the way of an eagle in the air; the way of a serpent upon a rock; the way of a ship in the midst of the sea; and the way of a man with a maid.

It is the first of the four phrases about which I am thinking—"the way of an eagle in the air."

Every man or woman needs a hobby. We may need it desperately when we are old and when we have to step aside from the *work* of our lives. But even when we are young it is of great value as a relaxation. It loosens a man up; it keeps him out of ruts; it broadens his horizons. It does not make too much difference what the hobby is. After all, you do not choose a hobby; it chooses you. It is like catching the measles; or, on a much higher plane, like finding a wife. You do not set out to do it. The lightning just strikes!

*Dr. Murray has been editor of *The Raven* and Presbyterian minister in Lexington, Virginia, for many years. At present he is teaching in a theological seminary in Louisville, Kentucky.

Hobbies do not have to be reasonable; more particularly, they do not have to be reasonable to the dull mass of outsiders. I have a collection of cartoons, poking fun at bird watchers; but I have never seen a cartoon stop anyone with the disease from wading in a swamp to find a prothonotary warbler.

To be sure, all hobbies are not equal. Bird watching is, of course, the finest of all hobbies. It combines in such rich fashion sport and exercise, science and intelligence, and all the aspects of the aesthetic. Birds present such an amazingly attractive combination of form and color; of song and action; and of fascinating problems to fill many lifetimes of study.

But to come nearer to our subject. I suppose every bird student has his favorite bird or group of birds. With some, it is the homely garden birds, cardinal and wren and catbird. And very properly so, for they give the best scope for study.

For other people, the shorebirds make up the favorite group. And surely there is nothing more charming in nature than the evolutions of a flock of killdeers or sanderlings along a beach.

My favorite group is made up of the hawks. I am

fascinated by their size, wildness, and skill in the air.

And my favorite bird is the bird which in America we call the duck hawk, but which in English literature is known as the *peregrine falcon*. It is the bird which, through the centuries in Europe, was the favorite bird in that type of hunting which takes its name from the bird itself, falconry. The nobleman rode out to the chase with a hooded peregrine perched on his gauntleted left arm. Because it is such a noble bird, no man of birth lower than an earl was permitted to keep a peregrine. The king had a full staff of falconers to train and care for his birds.

The peregrine falcon is a magnificent bird, fast and wild and powerful. I have seen its mastery of the air both in the European and the American bird. Once on a mountain top in the highlands of Scotland, I was looking out over the long, narrow lake that forms one of the eastern links of the Caledonian Canal. A shadow appeared high over Loch Lochy and at my level. Aiming my field glasses, I saw that it was the bird I had been hoping to see, a peregrine falcon, crossing the lake. Mile after mile I followed him as he sped with steady, strong wing-beats toward his high aerie in the rocky cliffs.

Last summer I watched a pair of them playing over the south rim of the Grand Canyon, chasing one another in and out of their nesting site in the red cliffs. The grace and the skill of those beautiful creatures added even to the awesome majesty of the Grand Canyon.

One evening in Germany, just a few weeks before Hitler launched his wild drive for world rule, we walked out into the square at Cologne for a view of that grand cathedral that started about the year 1100 and took nine centuries in building. The cathedral with its twin towers seems to grow right out of the ground. As we looked up in the twilight, two interesting things happened. A huge zeppelin came in sight, floating noiselessly through the sky, until for a moment it was outlined between the two towers. Then, from across the Rhine came two speedy falcons, also appearing between the towers but only for a second, before they sailed into the south tower to their nesting place. The contrast between these fine living creatures and the great man-made machine was all in favor of the birds.

Some of my most interesting memories are bound up with the sight of a peregrine. The only time I ever came near death in bird work was in the effort to reach one of their nests in an Alleghany Mountain cliff. John Grey and I had borrowed a rope and lugged it to the top of the mountain. We tied it to a clump of chestnut saplings

and dropped it down over the cliff. I went down the rope hand over hand, and searched the cliff. The nest was not far away, so that I could hear the young in it, but could not reach it. On the way back up the rope, I found that strand after strand had snapped. The rope had developed dry rot. Fortunately not more than one of the three strands broke at any one place; but I reached the top in a cold sweat.

The duck hawk is a bird of power. The pair at the nest in the cliff just referred to stayed aloft for three hours, always in sight and never coming to a perch. It is said to fly up to 90 miles per hour on a straightway. No bird can ever hope to escape by plain flying. No one knows how fast the duck hawk can go in a power dive. Bent records an instance where an aviator, diving at 175 m.p.h., was passed by a plunging duck hawk as if his plane were standing still. It takes its food on the wing, clubbing down a flicker or a duck with clenched fists, sometimes catching the dead prey before it hits the ground. Sometimes it turns over in flight to pluck an unlucky dove out of the air above him.

It is called a duck hawk because it likes duck where it can find them. In our mountain country it has small chance at such royal food and must be satisfied with flickers or doves or such lesser fowl. It is the greatest enemy of the blue jay, accustomed to torment other hawks but wise enough to let the duck hawk alone.

The finest sight I have ever witnessed in the avian world was the maneuvering of a pair of duck hawks at Grandfather Mountain many years ago. Alexander Sprunt and I had been watching a straggling flight of migrating duck hawks, apparently two family parties, when we noticed that a pair were engaged in play. The female was floating along, high over the Linville Valley and about on a level with our position on the mountain. The male would fly so high that he seemed but a speck to our natural eyes; then set his wings for a power dive, heading straight for his mate. As he came to the very point of striking her, he would swerve, the rush of air from his dive turning her over and over in the air. Again and again he did it, she seeming to enjoy it as much as he.

From all this, you see that I like hawks. Indeed, I have a passion for them. I think that in this group of birds you find one of the finest end products of evolutionary creation.

But there are many people who do not like hawks. Many farmers hate them. Many sportsmen, though not now so many as formerly, think they are vermin and shoot them whenever they have a chance. Their idea

The peregrine falcon is a magnificent bird...

fast, wild and powerful

is like the pioneer's idea of Indians: "The only good hawk is a dead hawk." The slaughter along Hawk Mountain, Pennsylvania, and at Cape May, New Jersey, is a case in point, though much of this is from the mere love of slaughter; for not only hawks but flickers and doves and all kinds of small birds are shot in the general massacre. There is still an occasional county in Virginia that pays the bounty on hawks, in spite of all the evidence about its uselessness from any standpoint and about the frauds inevitably connected with the bounty system. You may remember the article in *Virginia Wildlife* some years back, "Mutiny on the Bounty," when some sportsmen were waking up to the absurdity of the bounty idea.

All scientific biologists, not to say all nature lovers, know that this hatred of hawks is foolish, that it is not based on sound knowledge, and that the persecution of hawks and owls is even detrimental to man's interests. Others are now joining us. For a long time the nature lovers, who wanted to see this persecution stopped, have been voices crying in the wilderness of ignorance and prejudice, but now there seem to be at least some ears to hear their cries.

There have been in my memory three stages in the effort to block the slaughter of these birds of prey. These three stages might be called: the economic, the scientific, and the aesthetic.

The first stage was the *economic*, or *practical*, although in the end, like so many things labelled "practical," it was not practical or common sense at all.

In that stage, hawks and owls, and indeed all other animals, were looked on simply as man's possessions. An animal, bird or mammal, was not thought of as having any rights of its own. It was looked on as existing only for man's benefit—for his use or sport, or, if he chose, as something for him to destroy. If it were worth man's

while to wipe out, or assist in wiping out, a fine creature like the passenger pigeon or an interesting and highly specialized species like the great auk, there was no reason why he should not do it. To be sure, there were "cranks," who protested against such an assumption of divinity on the part of mortal man, but they were called "zoophiles" or "sentimentalists" and largely ignored.

But as P. A. Taverner (*Birds of Canada*) has remarked, turning from the purely practical aspect: "There should be enough game in the country to support so picturesque a character without arousing the jealousy of other hunters."

The second stage in the battle against the persecution of birds of prey was the *scientific*.

It might be called the ecological stage, for it was an effort not simply to study the hawk in relation to man, but in relation to the whole natural environment in which it lived. This is certainly more truly "practical" than the barely practical first stage.

From this viewpoint there are no "good" hawks or "bad" hawks; there are only natural hawks. Predation is a perfectly natural part of the system of life. From a "small bird's eye view" any hawk is bad. But from a "worm's eye view," a robin is the most vicious creature imaginable; and the more of them the hawk catches the better the worm should like it.

Predation is not only natural but is necessary. The research of this scientific period began to show several things in succession:

Predation is not always harmful to the species preyed upon but is often beneficial. It may be harmful to the individual bird indeed, but at the same time helpful to the species. It is necessary for nature to keep every species "on its toes." If there were no struggle for existence in nature, there would be no advancement in nature. It is only in the case of man, where (we hope) intelligence plays a part, that there can be any loosening of this law; and even there it is dangerous.

If in nature there were, for example, no natural checks on the bobwhite, unfit individuals would reproduce their kind, with a consequent degeneration of the stock. It seems likely that predators take chiefly the slow, the weak, and the sickly bobwhites, leaving the stronger individuals to carry on the race. We have learned that a species can stand a reasonable amount of predation, whether from natural enemies, like hawks, owls, foxes, weasels, or even from unnatural enemies like man, supported as he is by automobiles and high-powered weapons.

This scientific research developed the concept of the balance of nature, or the web of life.

We can overdo the concept of the balance of nature, if by it we mean letting nature entirely alone. Since man has come into the picture, there is no longer any balance of nature, with which there should be no interference. From now on we have to do the best we can in a confused situation, interfering as little as possible, and only where we have reason to think our interference is in accord with nature's trends. For instance, there is no use in killing off the screech owls, and then being over-run with



a plague of mice; or of killing off coyotes, and having a plague of jack rabbits; or of killing off all mountain lions and, in consequence, ruining the Kaibab Forest with too many deer.

In turn, we have learned that predation is only one and by no means the chief factor in the welfare of a species. The limitations on the numbers of a species are ecological, predation being only one of the elements. The relation between the number of quail on a farm this spring and the numbers left next spring is dependent upon food and water and cover. A farm will have as many quail as it has food to support them and cover to protect them.

Now, with this better understanding of the unity of all living things, plant and animals and human, there is coming a new sense of our own place in this "web of life."

And so we are entering a third stage, not only in our attitude toward the birds of prey, but toward the conservation of all nature. This stage is the *aesthetic*, or *comprehensive*.

It means, for one thing, the realization that the general public has its concern for and its rights in the outdoor world and its use, along with farmer and sportsman, along with the commercial interests of mining and grazing and lumbering.

The boy with his pole, as he fishes the stream, needs to hear the kingfisher's rattle and to see its flash of blue, entirely apart from the scientific fact that the kingfisher's damage to fish is a small matter. Visitors from the cities to our beaches have the right to watch the parade over the surf of the brown pelicans and the file of cormorants on the pilings, even if they do take some fish. The wild hoot of the great horned owl in the dark woods is worth an occasional hen. And most of all, the pageant of the peregrine in the sky justifies his meal of ducks or flickers.

It means, for another thing, that the social sanity of our modern life depends upon a good measure of nature in our schedule. Aldo Leopold, in the first sentence in *A Sand County Almanac*, says that "There are some of us who can live without wild things, and some who can not. For us of the minority, the opportunity to see geese is more important than television and the chance to find a pasqueflower is a right as inalienable as free speech." More people need to join that minority if our nation's life is to be sound.

You have but to visit one of our national parks, particularly in the West, to know that there are people in increasing numbers in our land who feel the need of a direct contact with nature. That intangible but very real value is at the heart of our conservation efforts. I have not in a long time been so proud of America as when I read in *Wild America* what Roger Peterson's companion on their circum-continental trip, James Fisher, the English biologist, said about the wonder and the wisdom of our national park system. Not only for these parks and others which need to be set aside, but for every bit of wild America around each town and village we must be ready to labor and to fight.

America is no longer a pioneer nation, where all of us



stand on the ground and can look out into the woods. Too many of us now stand only on the concrete, and it gives our spirits fallen arches. Too many of us look out only on steel and brick and mortar, and the eyes of our minds grow dull. There is danger that we shall become increasingly more shrewd and increasingly less wise.

There are curses as well as blessings in civilization. The contact with nature is one of the things that will restrain those curses. It is not only a tragic thing to wipe out a species of wild bird or mammal that has been a hundred million years in the making; to cut back all our forests to a dull uniformity of second growth; to squander our natural resources of soil and water; it is not only a tragic thing but it is suicidal for us to brush aside all simple, natural things and become but urban tenants, who do not truly own the ground on which they live because they never see or know the life it creates.

I have talked about the peregrine. I have, of course, been thinking of him as a plain, real and wonderful fact in our wild America. But as much I have been thinking of him as a *symbol*. In his grace and power, in his skill, he is the symbol of all that is beautiful and exciting in the world around us.

He is the symbol of wild America, elemental and untamed, symbol of the delight in beauty, symbol of the freedom to which we must hold, if life is to continue to have in it any simplicity and any zest.

He is the symbol, not of God's final and finest gifts indeed, for those lie in the realm of personal relationships, human and divine; but symbol of God's first and simplest gifts, the nature from which we have come, and to which, if our hope of advancement in intelligence and in spirituality is to be realized, we must continue to hold fast.

(Talk delivered at the annual meeting of the Virginia Society of Ornithology at Wachapreague, Virginia, on May 3, 1957, and appearing in September-October 1957 issue of *The Raven*. This is a somewhat abbreviated version of his talk.)

All life depends upon water. Plants need it; animals cannot live without it. Here is a partial answer to the growing importance of water to wildlife, on Virginia's 1,500,000 acres of national forest lands.

Water Holes for Wildlife

By JAMES E. THORNTON
Game Biologist Supervisor

ON a recent trip along the newly completed hunter access road to the top of Hanky Mountain, a black bear was observed as it lumbered away from a small water hole built there several years ago by the Commission's wildlife workers on the George Washington National Forest. This close-up view of Bruin was a real thrill to those in the party as the black bear is seldom caught napping in its native haunts. Closer inspection of this particular water hole showed that other wild animals, including deer, wild turkey and raccoon, had also taken advantage of the water made available by this small pond.

The fact that wild animals need water to survive is nothing new. All life depends on water. All organic processes must have a watery medium in which to function. In short, without water, all life would perish from the earth. It has been within the past few years, however, that the development of sources of free surface water primarily for wildlife use has begun to take hold as a tool in game management. The growing interest in water in the wildlife management program on the national forests of Virginia has been brought about largely because of the series of dry summers which have occurred within the last few years. Surface water has been almost non-existent over much of the forest area during the summer and fall months. Many streams have dried up and remained that way until early winter.

Wildlife workers have long recognized the importance of a reliable source of free surface water in wildlife management. Nearly all wildlife species are dependent

more or less on surface water and most must have it if they are to make use of the other essentials which go to make up their habitat (food and cover). For example, the wild turkey, one of the most important game birds in the mountains of Virginia, must have a source of free surface water well distributed over its range. In addition, water must be available to feeding and nesting sites. In their book, *The Wild Turkey in Virginia*, Mosby and

Handley reported that no flock of turkeys was found more than five miles from a stream of substantial size. In periods of severe drought, it was found that the drying up of small springs and creeks caused the wild turkey to change its range to locations where surface water was available. Although the wild turkey may travel some distance in search of water, the absence of water may definitely limit the use of large areas of forest land by this bird. Young poults may survive without free water, obtaining a large part of their moisture requirements from dew, succulent vegetation and soft-bodied insects. During extreme drought even those sources of moisture may prove inadequate and free water becomes even more important.

The ruffed grouse is able to satisfy its water requirements without resort to water in the free state. Dew and succulent vegetation, such as fruit and green shoots, take care of the moisture requirements under normal conditions. While it might not require moisture in its free state, the conditions usually associated with water holes and wet areas are undoubtedly attractive to this bird. This is especially true during the hatching and brooding season and in the hot summer months.



Game Commission Photos
by Kesteloo

Many water holes have been constructed on national forest lands for use by wildlife. During drought years, these water holes are heavily utilized.

A close inspection of almost any water hole on the forest will reveal heavy use by deer. While experiments have shown that deer may obtain all the moisture they need from eating green and succulent vegetation when available, they utilize surface water during hot and dry periods when herbaceous vegetation has matured and dried. It has been proven that does and fawns particularly need open water during such periods. There is no doubt that the best range has plenty of free surface water available to deer. The presence of a dependable source of surface water at reasonable intervals over an area provides that much more quality deer range, thus providing a more productive territory for the hunter.

Probably the most sought-after animal in the forest lands of Virginia is the gray squirrel. Investigations carried on by the West Virginia Conservation Commission found that surface water is not absolutely essential to the gray squirrel but is taken when available. During drought years, especially when surface water is not readily available, succulent plants are the most important source of water. Generally speaking, areas containing a spring, a pond, or a stream are more often utilized than those without a source of readily available water.

As for the black bear, little is known about its moisture requirements. It undoubtedly gets much of its essential moisture during the spring and summer months from fruits and berries. It does, however, make good use of water when available. Bear sign is observed around almost every pond within bear range and evidence indicates that the water holes are frequently used as a source of drinking water and for wallows during the summer months. Good bear range must have a reliable source of surface water.

The mountain areas of Virginia are not normally considered good waterfowl habitat and perhaps when compared with the large marshes, swamps and rivers of eastern Virginia, they come in second place. The fact remains, however, that almost any small pond built in the western part of Virginia sooner or later plays host to waterfowl. For example, flocks of ducks up to 500 in number have been flushed from some of the larger ponds on the Big Levels Federal Game Refuge in Augusta County. Where a series of ponds are within close proximity to one another, they are utilized even more frequently as the waterfowl fly from one to another when disturbed. Local hunters are beginning to realize that they have duck hunting within their own reach and are beginning to take advantage of this resource.

For a number of years, the Virginia Commission of Game and Inland Fisheries, through its cooperative wildlife program with the United States Forest Service, has been making every effort to provide as much surface water as possible for wildlife use through its habitat improvement project. This has been largely through the construction of small impoundments and ponds. These ponds are generally of two types. Where suitable sites are available, small impoundments of up to one-fourth acre in size are built. These small structures normally are planned with the aid of the Soil Conservation techni-



Sportsmen, scout groups and other conservation-minded individuals clean out old springs for wildlife watering areas.

cians and include an overflow pipe and an emergency spillway. Such ponds have a maximum depth of six feet at the spillway. Another type which is constructed wherever possible is of a water-catchment basin type. This has a minimum watershed and is normally built on dry ridge tops on fairly level areas. They are usually small, seldom exceeding 50 feet in diameter. They are built simply by scooping out a basin to catch rain water and to hold any seepage which may occur. All of these small ponds show a great deal of use by wildlife and offer great possibilities because of their relatively small cost. In addition to the above types, dynamite is sometimes used to create small areas of open water in damp places. In addition, all springs at old home sites and other places are rehabilitated and made useable to provide water for the sportsman and for wildlife using the area.

Plans have been completed for the construction of several large ponds which will provide up to four acres each of open surface attractive to waterfowl. They will be shallow in depth and will be built so that they may be drained in the spring and planted to desirable waterfowl food plants. In the fall they will be flooded to permit waterfowl to use the food produced on the area in the summer months.

The development of sources of readily available surface water for wildlife use offers one of the best opportunities for the improvement of the over-all wildlife habitat over the vast area of the national forests in Virginia. Water alone, however, will not lead to more deer, turkey, grouse or other desirable game animals or birds. Essential food and cover must also be present if the range is to be useable by given game species. By making water available, an increase in the number of desirable game animals and birds may be expected and will encourage their spread into hitherto unoccupied range. It is conceivable that the presence or absence of water in large blocks of forest land may be the factor which determines whether or not wildlife can exist in an area. The Commission and the U. S. Forest Service intend to see that "cool, clear water" is within the reach of all wildlife within the national forests of Virginia.



Harrisonburg News-Record Photo

The mammal control supervisor of the Virginia Commission of Game and Inland Fisheries spends a great amount of time on trapping demonstrations for interested groups.

Virginia Meets the Rabid Fox Problem

By VINCENT REILLY

Staff Member, Harrisonburg Daily News-Record

HOW successful can people be in trapping foxes in an effort to keep down rabies? A lot of trappers in 17 Virginia counties who've talked to F. Nelson Swink, Jr., Virginia's mammal control supervisor, and the Game Commission's trapper, Gerald T. Blank, believe they can be reasonably successful.

Swink, who for the past several months has directed trapping demonstrations in the counties for the program, says that we won't know how well we've carried out the task in battling the rabid fox until fall, or late summer of 1958.

"Then," says Swink, "we can look at what we hope will be a reduction in the number of rabies cases as reported in 1957 and, also, survey the rabbit population. If the rabbit population is high, we can be confident that the trapping program has been successful. A large rabbit population indicates a small fox population for the rabbit is Reynard's favorite dish."

In 1956 the Virginia General Assembly became concerned over the rabies problem in the state and amended the Appropriations Act to establish the position of mammal control supervisor, who would work cooperatively with county officials in rabies control. The idea was to

tackle the problem on at least a county-wide basis. In recent years Virginia and its neighboring states, in localized areas, had been subjected to rather severe epizootics of rabies. The fact is that in Virginia during 1954 some 1,650 people were treated by private physicians and State Health Department officials for the disease. Then in 1955 some 1,000 people were treated.

Why pick on the fox?

"The Virginia Commission of Game and Inland Fisheries," says Swink, "is confident that the fox, in addition to carrying rabies, causes a loss of approximately \$100,000 in livestock alone and probably twice this amount in poultry losses in Virginia each year."

Swink points out that in one county alone, Rockingham, over 100 rabid foxes were killed in 1957 and in that same county more than six persons were bitten by the rabid animals.

The trapping program now underway will continue until April. It is a joint cooperative effort of the Virginia Extension Service, the Virginia Department of Agriculture, the Virginia Commission of Game and Inland Fisheries, the U. S. Fish and Wildlife Service, and trappers in the various counties—all aiming to drastically

reduce the fox population in the 17 Virginia counties considered most critical.

"We are concentrating on the gray fox population," says Swink, "because it has been found that a mange is reducing the population of the red fox. This mange, unfortunately, does not affect the gray fox."

Briefly, Swink, Blank, John C. Jones of the U. S. Fish and Wildlife Service, Washington, along with the county game wardens have been carrying out trapping demonstrations throughout the 17 counties. When the program's objective—trapping—got underway in January, traps were used which were purchased from counties at cost price, the same price which the counties had to pay for them. Fox urine collected by the Commission was distributed in small bottles to each of the trappers.

The trappers are using what is known as the "dirt hole set." This type set is used throughout the country by professional trappers. It is the most successful set ever devised to catch the fox. The set is relatively simple to make and extremely effective on the fox and other predatory animals.

All the trapper has to do is to dig a hole, place cracklins (rabbit, ground hog or muskrat) as bait in front of the hole and place about $\frac{1}{4}$ to $\frac{1}{2}$ inch of dirt over the top of the trap after placing fox urine over the bait.

"If the traps are set correctly the fox will walk directly into the set without much pausing and I might add," says Swink, "that the fox can pick that 'scent' up from as far away as 300 yards."

The Virginia Commission of Game and Inland Fisheries mammal control supervisor pointed out that the trapping program began around the start of the breeding season and will be completed approximately at the end of the breeding season.



Game Commission Photo by Kesteloo

Traps should be thoroughly boiled before using so that all human scent will be removed.



Game Commission Photo by Kesteloo

Various types of trap sets are capable of catching foxes. Fox sign in an area determines the best set to use.

The gray fox will have a litter of from 3 to 7 while the red fox, whose population is now being reduced by mange will have 4, 7 or 8 in a litter. Thus you can see what a successful trapping program can do in sharply decreasing the fox population.

As the foxes are being trapped, their tails will be turned in to various checking stations throughout the counties. The trappers' names and the numbers of foxes each has trapped will then be taken and these names presented to the boards of supervisors at their monthly meetings. After these meetings the checks for the bounties, which range from \$2 to \$3 per fox in the various counties, will be mailed to the trappers.

Virginia is hopeful that neighboring West Virginia will also aid in the war on rabid foxes. The Virginia mammal control supervisor says that counties taking part in the program include Rockingham, Augusta, Shenandoah, Rockbridge, Alleghany, Bath, Highland, Warren, Clarke, Culpeper, Fauquier, Loudoun, Fairfax, Spotsylvania, Stafford, Botetourt and Frederick.

Of course, landowners who have had this war on Reynard brought home to their property did not wait until the January 11 "over the top" order to open their battle against the fox. They have been trapping for some time on their own land but these kills, according to Swink, are just a skirmish.

A vanishing fox fur market is just what Mr. and Mrs. Reynard and all the little R's had been awaiting. During 1957 the foxes were on a "picnic" in western Virginia. The various state and national agencies were fully aware that something had to be done, when foxes became overpopulated, to control the pesty animal that kills livestock, poultry and, what is more of a problem to man, spreads dread rabies.

"Through the cooperative efforts of the Virginia trappers, and the various Old Dominion and U. S. agencies taking part in the program," says Swink, "we are confi-

dent that we can win this battle against the fox. We must win it during the present trapping months or we must face an ever-increasing fox population and an ever-increasing problem in the years ahead."

All who are cooperating in making possible this supervised trapping program are confident that the fox population can be curtailed and, in so doing, the rabies problem will be brought under control in troubled areas.

Fox rabies presents a serious problem in the eradication of rabies in dogs. If a reservoir of infection is maintained in foxes, outbreaks can be expected whenever the density of the fox population and other factors are favorable. Thus, any relaxation in the anti-rabies control

program in dogs could mean reintroduction of rabies into the dog population from rabid foxes.

Control measures, over a period of time, can eliminate rabies. The major measure is through local legislation, planned and enforced by local officials. Assistance with planning and operation of these control methods is available through the Virginia Commission of Game and Inland Fisheries, Virginia Department of Agriculture and Immigration, the Virginia State Health Department and the U. S. Fish and Wildlife Service. They have a well designed program worked out and will aid local government with establishing a trapping program that can and will eliminate the dreaded disease of rabies.

AMERICAN CULTURE (Continued from page 10)

In my opinion, the promotion of wildlife research sports is the most important job confronting the profession of wildlife management. Wildlife has still another value, now visible only to a few ecologists, but of potential importance to the whole human enterprise.

We now know that animal populations have behavior patterns of which the individual animal is unaware, but which he nevertheless helps to execute. The rabbit is unaware of cycles, but he is the vehicle for cycles.

We cannot discern these behavior patterns in the individual, or in short periods of time. The most intense scrutiny of an individual rabbit tells us nothing of cycles. The cycle concept springs from a scrutiny of the mass through decades.

This raises the disquieting question: do human populations have behavior patterns of which we are unaware, but which we help to execute? Are mobs and wars, unrests and revolutions, cut of such cloth?

Many historians and philosophers persist in interpreting our mass behaviors as the collective result of individual acts of volition. The whole subject matter of diplomacy assumes that the political group has the properties of an honorable person. On the other hand, some economists see society as a plaything for processes, our knowledge of which is largely *ex post facto*.

It is reasonable to suppose that our social processes have a higher volitional content than those of the rabbit, but it is also reasonable to suppose that we, as a species, contain population behavior patterns of which nothing is known because circumstance has never evoked them. We may have others the meaning of which we have misread.

This state of doubt about the fundamentals of human population behavior lends exceptional interest, and exceptional value, to the only available analogue: the higher animals. Errington, among others, has pointed out the cultural value of these animal analogues. For centuries this rich library of knowledge has been inaccessible to us because we did not know where or how to look for it. Ecology is now teaching us to search in animal populations for analogies to our own problems. By learning how some small part of the biota ticks, we can guess how the whole mechanism ticks. The ability to perceive these deeper meanings, and to appraise them critically, is the woodcraft of the future.

To sum up, wildlife once fed us and shaped our culture. It still yields us pleasure for leisure hours, but we try to reap that pleasure by modern machinery and thus destroy part of its value. Reaping it by modern mentality would yield wisdom as well as pleasure.

Our Land

"God has given us the earth for our life. It is a great entail. It belongs as much to those who come after us as to us, and we have no right, by anything we do or neglect to do, to involve them in any unnecessary penalties, or to deprive them of any benefits which are theirs by right."

—John Ruskin



Driver Uses Bow, Also

Lynn Driver of Route 3, Broadway, Virginia, received the top prize in



Harrisonburg News-Record Photo by A. Litten
Lynn Driver displays the deer that may qualify him for a prize in the 1958 Big Game Trophy Contest.

Class I (nine points and over) competition of the western division of the Big Game Trophy Contest. The fine 14-point head then went on to win first place in Class I competition in the finals of the contest held in Newport News on November 9.

On Saturday morning, October 26 (the same day Driver won the Class I prize in the western division) he killed a nine-point, 197 pound deer with a bow and arrow. This will certainly make a fine entry for deer killed by bow and arrow in the 1958 Big Game Trophy Contest.

Metal Coffin

There is a great amount of talk and writing these days about litterbugs in this country. In addition to creating an unsightly environment in many areas, litterbugs often contribute

directly, or indirectly, to hardships among wild animals and fish.

A recent account in Oregon should be of interest to those individuals who consistently throw debris on our roadsides and into our streams.

While walking along a trout stream, a fisherman noticed a small steelhead fry enter the V-shaped opening of a beer can lying in about 18 inches of water. Noticing that the fry did not leave the can after several minutes, the observer removed the can and examined its contents. He was shocked to find at least 40 more fry within the "tin trap," half of which were dead.

An Oregon fisheries biologist concluded that the opening in the can was a natural attraction to small fish seeking shelter during times of danger. After entering the can the fish could not find their way out and the crowded condition eventually killed a great number of the "jailed" individuals.

Chronic litterbugs should remember this the next time trash is thrown into a stream or off on the shoulder of the road.

Latham Leaves Research Post

Dr. Roger M. Latham, chief of the Pennsylvania Game Commission's division of research for the past seven years, has recently left that position to accept a job with the *Pittsburgh Press*. Latham's new job will consist of the writing of an outdoor column dealing with conservation, hunting and fishing in the Quaker State.

Latham has been an important figure in the Pennsylvania Game Commission during his tenure and has contributed much to the advance of wildlife management through research. His recent work, *Complete Book of the Wild Turkey*, was published in 1956.

Duck Stamp For 1958-59

The U. S. Fish and Wildlife Service in Washington has announced the new waterfowl stamp for the coming duck season. This stamp will carry a black and white drawing of Canada geese feeding in a picked cornfield. The winning drawing was selected from 96 entries by 55 artists. Artist Leslie C. Kouba of Minneapolis, Minnesota, is this year's winner.

The new stamp will go on sale July 1, 1958, and will be valid to June 30, 1959.

Food A'Plenty

The FFA chapter at Andrew Lewis High School in Salem, Virginia, is apparently doing a good job in its wildlife conservation program.

Members of the FFA, farmers and friends in the Salem area planted 65 bags of game food mixture during the past year. Realizing the importance of this type work, the Williamson Road and Roanoke Valley Ki-



This winning food patch is typical of several planted in the Salem area for wildlife usage.

wanis Clubs offered prizes totaling \$60 to the best five food plots. With the incentive of a possible cash prize for a food plot, good participation in the contest will perhaps continue in the coming years.



Antlered Doe

Occasionally a freak will turn up in a wildlife population just as in our human ranks.



Game warden Harry France had to take a second look at this freak deer after discovering it was a doe.

Edward Garland of Warsaw, Virginia, was slightly "shook" upon examining the "buck" he just shot. Much to his surprise the male deer turned out to be a fine doe with antlers. One of the antlers was missing but the remaining half was approximately 10 inches long with two points.

Researchers estimate that this type of abnormality occurs once in every 10,000 to 20,000 births. Garland can now say that this lucky shot was one in 10,000.

New Ranger District

W. C. Curnutt, supervisor of the Jefferson National Forest, recently announced that a new ranger district will be created with headquarters at Blacksburg, Virginia.

The district will manage 89,468 acres of public land in Giles, Montgomery, Bland, Craig and Roanoke Counties. This will reduce the size of both the New Castle and Wythe Ranger Districts.

Curnutt explained that the move

was being made to better serve the public and to permit more intensive forest management in the area.

Largemouth Trophy

A fishing trip on October 5, 1957, proved to be very exciting and rewarding for James B. Whitlow of 2501 Berwyn Street, Richmond.

Fishing in Gardy's Pond near Callao in Northumberland County, Whitlow succeeded in landing a 9 pound 14 ounce largemouth bass using a bass-action fly rod and artificial bait. Apparently this 75-acre pond, owned by Mrs. Chaplin of Hyacinth, contains some very nice bass for the interested and patient fisherman.

moving their automobile they discovered a parked car nearby that was empty. Driving down the road approximately two miles, the men again started a long vigil. Around 11 p.m. the car moved towards them, whereupon it was stopped and searched.

Three men were in the vehicle and they had in possession three raccoons. Upon trial, the men were convicted and fined a total of \$92.73; figuring around \$30.91 for each animal or \$3.00 per pound. Rather expensive meat and further proof that prices continue to rise.

New Herd—Nice Deer

Game biologists in recent years have been trying to sell a sound deer management program in Virginia. Their reasoning is this: Deer numbers must be kept down to where they are in balance with their food supply. If the population is held in check, then the deer get sufficient amounts of good quality food. This in turn produces large deer of trophy value.

Joe Coggin, special services officer of the education division of the Commission, spent the opening week of deer season at the Meadows of Dan game checking station in Patrick County. The Patrick herd has been closed to hunting for several years so that a huntable deer population could be established. During the week 61 deer were checked (two were checked during the bow season) in the county, and all were of excellent size and quality. One deer that came through Coggin's check station was a 10 point, 219 pounder (live weight). Two-hundred pound deer were not uncommon in this excellent herd.

The sportsmen of Patrick County hope that through proper harvesting methods the herd can be kept in top condition during the coming years.



Meat Prices Up

Game warden E. L. Cather of Frederick County and conservation officer Fred W. Hottle of the Thomas Jefferson District were checking on deer "spotlighters" in northwest Frederick County during the month of October.

After a long wait the officers heard dogs barking and assumed that a raccoon hunt was in progress. Upon

Wildlife Questions and Answers

Ques.: I am a high-school senior and plan on going to college next September. Wildlife conservation has always been of great interest to me and I have been thinking seriously of entering this field. However, my father tells me that conservation workers receive a rather low salary in comparison to other professional workers. Could you give me any comparison figures on professional wages?

Ans.: First, before we get into wage comparison figures, I feel that you should decide whether you want to work for pleasure and self satisfaction or strictly for money. It has long been accepted by conservation workers that part of their compensation is derived from personal satisfaction and the feeling that they are working for a very worthwhile cause.

A recent publication from the Sport Fishing Institute compared the average fish biologist's yearly wage with that of an engineer with similar education and experience. The average fish biologist earned \$4,860 during 1956 while the engineer earned \$9,400. This represents almost twice as much money on the part of the engineer. It is for this reason that many biologists are going into other professional lines of work.

Ques.: Should we eat oysters only during those months which contain R? This would mean that their meat is dangerous during May, June, July and August.

Ans.: Oysters are never poisonous unless they are found in contaminated water. There is a good reason for not eating them during the summer months, however. It is during this period that many oysters are spawning and they should be left for future crops. Also, after oysters have spawned they tend to be stringy and watery, with a poor flavor.

Ques.: On several occasions I have heard my grandfather speak of bear fat being used by local residents when he was growing up. Was this substance actually used by early settlers?

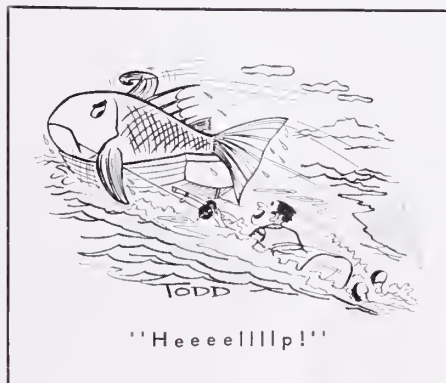
Ans.: Yes. It appears that bear fat, sometimes called bear grease, was used a great deal as a salve for skin irritations and abrasions, hair oil and in making candles. Another common use was for wheel hubs on wagons where it served as a lubricant. Many people used the oil in cooking and frying, also.

Ques.: A friend recently told me that he heard gray squirrels barking in November. I have never heard squirrels barking in cold weather and I wonder if he was kidding me. Could you give me an answer on this?

Ans.: You are likely to find the gray squirrel barking any month of the year. Barking is a natural reaction squirrels have upon becoming excited or annoyed.

Ques.: What are the common foods of the weasel?

Ans.: The weasel is a predator and therefore feeds on other animals. Food habits studies have shown that mice, rats, moles, insects and rabbits constitute the bulk of his diet. Some investigators have found that a weasel will consume one third to one half of its body weight each 24 hours during the summer months.



Ques.: Is there any way of finding out how much land is eroded in the United States each year?

Ans.: In reply to this question the answer cannot be completely correct. The U. S. Soil Conservation Service has estimated that 5,400 million tons of soil are lost each year from the lands of our country. This is a shocking figure when a person realizes that it takes over a hundred years for nature to build one inch of topsoil.

Ques.: Could you tell me how much is spent annually for natural fish bait in this country?

Ans.: It is impossible to give a correct answer on this question but it has been estimated that over 30 million dollars are spent each year on various types of live bait. Almost a third of this money is spent on the old American standby—the earthworm.

Ques.: Would you please distinguish the difference between game preserve and game reserve?

Ans.: These are two terms which mean one and the same thing. They both refer to an area which is set aside for the propagation of game species and it may be legal or illegal to hunt on the area.

Ques.: Do you have any figures available on the amount of water used by industry in manufacturing various products?

Ans.: Each ton of finished steel produced in this country requires around 65,000 gallons of fresh water; one ton of bromine requires five-million gallons; one ton of magnesium, 300,000 gallons; and one ton of synthetic rubber, 600,000 gallons. From these figures you can see the large demand of industries on our streams.

Ques.: Does your department furnish information on the state parks of Virginia?

Ans.: No, we do not. For information on our parks, and the facilities offered at each, write to the Department of Conservation and Development, Division of State Parks, State Office Building, Richmond, Virginia.

Ques.: I have heard the old saying all my life that if the slug from a rifle cartridge is dropped from the same height as the muzzle at the same instant the rifle is fired horizontally, both slugs would hit the ground at the same instant. Is this true?

Ans.: For all practical purposes, you could say that both slugs will hit the ground at the same time. To be technical, however, the test would have to take place in a vacuum in order for both objects to hit the ground at the same instant.

According to ballistics experts with delicate timing devices, a bullet dropped and one fired in the air from a height of 60 inches would have a difference in time of ground impact of thirty-five one-thousandths of a second. This lag in time is created by the increased wind resistance of the atmosphere upon the bullet.

Ques.: To whom do I write for information on salt-water fishes?

Ans.: The Virginia Commission of Game and Inland Fisheries deals only with the fresh-water species. Information on salt-water fish can be obtained by writing to the Commission of Fisheries, Newport News, Virginia, or the Virginia Fisheries Laboratory, Gloucester Point, Virginia.

*“He who knows what sweets and virtues are
in the ground, the waters, the plants,
the heavens, and how to come at these
enchantments, is the rich and royal man.”*

—RALPH WALDO EMERSON